

CTE Standards Unpacking ***Nutritional Sciences***

Course: Nutritional Sciences

Course Description: Nutritional Sciences provides an in-depth study of nutrition and how it affects the human body. Topics include extensive study of major nutrients, nutrition/food choice influences, technological and scientific influences, special diets, and career exploration in this field. Attention will be given to nutrition, menu planning, industry based food safety and sanitation. Laboratory experiences will be utilized to develop food handling and preparation skills. Nutritional Sciences is geared toward students interested in careers involving dietetics, education and health and wellness related fields.

Career Cluster: Human Services

Prerequisites: Foundation course – Introduction to Human Services – Relationships Across the Lifespan – Nutritional Sciences – additional pathway course – capstone experience

Program of Study Application: Nutritional Sciences is a pathway course in the Human Services career cluster, Family and Community Services/Mental Health Services and Early Childhood Development and Services pathways. A student would participate in Introduction to Human Services prior to participation in this course. Nutritional Sciences prepares a student to participate in additional pathway courses in the family and community services/mental health services, or early childhood development and services pathways.

INDICATOR #NS 1: Analyze career paths within food science, food technology, dietetics, and nutrition industries.		
SUB-INDICATOR 1.1 (Webb Level: 2 Skill/Concept): Classify skills and educational requirements for employment in dietetics and nutrition field.		
SUB-INDICATOR 1.2 (Webb Level: 3 Strategic Thinking): Differentiate the impact of societal and industry trends on food science, dietetics, and nutrition careers.		
Knowledge (Factual): -Nutrition, Dietetics, and Food Careers -Impact of food technology and industry trends on nutrition -New food products (i.e. gluten free, reduced fat, reduced sugar, all natural, organic, free of dyes, GMO free, etc.)	Understand (Conceptual): -It is important to identify the required level of skills and education required for a variety of food science and technology careers. -As technology improves, new food products are developed.	Do (Application): -Career research Job shadowing Guest speakers, Postsecondary school visits -Research “new” food products.

-Farm, processing, to table		
Benchmarks: <i>Students will be assessed on their ability to:</i> <ul style="list-style-type: none">Identify patterns in the food science, technology, and dietetics career fields/industries.Assess the impact of changing technology and consumer demand on food science careers.		
Academic Connections		
ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard): The Performance Task suggestions at right integrate one or more of the following academic standards: ELA Reading Informational Text Standard: 9-12.RI.1 Cite strong, relevant evidence ELA Writings Standards: 9-12.W.4 Produce clear and coherent writing...appropriate for the task; 9-12.W.6 Use technology to produce and publish; 9-12.W.7 Conduct short as well as sustained research ELA Speaking and Listening Standard: 9-12.SL.4 Present information, findings, and supporting evidence	Sample Performance Task Aligned to the Academic Standard(s): -Interview or research a food science or technology specialist or dietitian. Write a reflection on education and skills needed. Share in class. (9-12.RI.1, 9-12.W.4, 9-12.W.7) -Investigate why and how “new” food products are developed and how that impacts careers. Showcase your findings in an infographic, poster, or other presentation format. (Ex: Ethanol by-product can be processed for cattle and human consumption. Consumer demand for gluten free products. Consumer demand for the use of fewer additives and preservatives) (9-12.RI.1, 9-12.W.4, 9-12.W.6, 9-12.W.7, 9-12.SL.4)	
INDICATOR #NS 2: Evaluate nutrition principles, food plans, and specialized dietary plans.		
SUB-INDICATOR 2.1 (Webb Level: 4 Extended Thinking): Analyze nutrient requirements across the lifespan addressing the diversity of people.		
SUB-INDICATOR 2.2 (Webb Level: 3 Strategic Thinking): Critique the impact of food choices and trends on health and wellness.		
SUB-INDICATOR 2.3 (Webb Level: 2 Skill/Concept): Construct a modified diet based on nutritional needs and health conditions.		

<p>Knowledge (Factual):</p> <ul style="list-style-type: none"> -Individual Food Plans -Health effects based on nutrition (gluten-free, vegans, lactose-intolerant, diabetes, food allergies, fad diets, supplements, etc.) -Breaking down nutrients to explain the impact on the body. -Cultural and religious values 	<p>Understand (Conceptual):</p> <ul style="list-style-type: none"> -Food and nutritional needs change across the lifespan. -Food plans need to be altered for health related concerns. -Fad diets can pose a risk to health and wellness. 	<p>Do (Application):</p> <ul style="list-style-type: none"> -Create and evaluate food plan. -Research the nutrient density of various products. -Track daily meals
<p>Benchmarks: <i>Students will be assessed on their ability to:</i></p> <ul style="list-style-type: none"> • Critique a meal plan based on nutritional requirements. • Hypothesize health and wellness outcomes of following a particular diet. • Distinguish between healthy and unhealthy diets as they relate to health concerns. 		
<p>Academic Connections</p>		
<p>ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard):</p> <p>The Performance Task suggestions at right integrate one or more of the following academic standards:</p> <p>ELA Reading Informational Text Standard: 9-12.RI.1 Cite strong, relevant evidence</p> <p>ELA Speaking and Listening Standard: 9-12.SL.4 Present information, findings, and supporting evidence</p>	<p>Sample Performance Task Aligned to the Academic Standard(s):</p> <ul style="list-style-type: none"> -Create a project focusing on nutrient, excess, and deficiency. (PowerPoint, Prezi, video) (9-12.RI.1, 9-12.W.2, 9-12.W.6, 9-12.W.7) -Given a scenario, determine the pros and cons of a meal plan based on certain nutritional needs. (9-12.RI.1, 9-12.W.1, 9-12.W.7) -Create a Nutrition Facts Label. (9-12.W.4, 9-12.W.6) -Analyze your daily eating habits and physical activity and decide if it is necessary to make adjustments to your daily routine. (9-12.RI.1, 9-12.W.4) 	

INDICATOR #NS 3: Implement practices that promote industry-based safe food handling.

SUB-INDICATOR 3.1 (Webb Level: 2 Skill/Concept): Demonstrate an ability to follow food service management safety and sanitation procedures.

SUB-INDICATOR 3.2 (Webb Level: 2 Skill/Concept): Implement industry standards for documenting, investigating, and reporting foodborne illnesses.

<p>Knowledge (Factual):</p> <ul style="list-style-type: none"> -Safety and sanitation of storing, preparing, and serving food -Agencies related to food safety: <ul style="list-style-type: none"> ○ OSHA ○ CDC ○ USDA ○ FDA ○ Local authorities/health departments 	<p>Understand (Conceptual):</p> <ul style="list-style-type: none"> -Steps regarding safety & sanitation should be taken to prevent foodborne illness. -Concerns related to the safety and sanitation procedures should be reported. -A breakout of foodborne illness should be reported, documented, and investigated. 	<p>Do (Application):</p> <ul style="list-style-type: none"> -Certifications including: ServSafe, OSHA, Rserveing -Tour a food service establishment (grocery store, meat locker, hospital, restaurant, virtual tour) -Guest speaker from the food industry.
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Benchmarks:

Students will be assessed on their ability to:

- Explain the importance of safety and sanitation knowledge and skills.
- Collect and display data about foodborne illness cases.

Academic Connections

<p>ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard):</p> <p>The Performance Task suggestions at right integrate one or more of the following academic standards:</p> <p>ELA Reading Informational Text Standard: 9-12.RI.1 Cite strong, relevant evidence</p>	<p>Sample Performance Task Aligned to the Academic Standard(s):</p> <ul style="list-style-type: none"> -Observe food safety and sanitation procedures via a tour or virtual tour. Explain what steps should be taken and why via a paper. (9-12.RI.1, 9-12.W.2) -Research foodborne illness breakouts and create a product (poster, infographic, PSA) outlining steps and procedures for preventing future outbreaks. (9-12.RI.1, 9-12.W.1, 9-12.W.6, 9-12.W.7)
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INDICATOR #NS 4: Apply food science principles in a laboratory setting to maximize nutrient retention and meet specialized dietary requirements.

SUB-INDICATOR 4.1 (Webb Level: 4 Extended Thinking): Analyze recipe/formula proportions and modifications for specialized diets.

SUB-INDICATOR 4.2 (Webb Level: 4 Extended Thinking): Apply nutrition knowledge to maximize nutrient retention in prepared foods.

<p>Knowledge (Factual):</p> <ul style="list-style-type: none"> -Nutritious food substitutions (applesauce in place of fats, tofu in place of eggs, avocado in place of oils) -Specialized diets to address personalized health concerns. -Different food preparation techniques. 	<p>Understand (Conceptual):</p> <ul style="list-style-type: none"> -There are a variety of healthy substitutions that can make meals appetizing and aesthetically pleasing. -Different food preparation techniques affect the nutritional quality of foods. 	<p>Do (Application):</p> <ul style="list-style-type: none"> -Practice modifying recipes. Examples include: removing salt from recipe, reducing fats, adjusting to fit specialized diets for health needs (such as gluten free, fat free, etc.) -Practice modifying cooking techniques. Examples include: Steaming instead of boiling, grilling instead of pan frying, baking instead of frying, washing instead of soaking
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Benchmarks:

Students will be assessed on their ability to:

- Propose a specialized diet and defend how it meets outlined requirements.
- Evaluate the effects of food preparation techniques on nutrient quality and density, flavor, and appeal.

Academic Connections

<p>ELA Literacy and/or Math Standard (if applicable, Science and/or Social Studies Standard):</p> <p>The Performance Task suggestions at right integrate one or more of the following academic standards:</p> <p>ELA Reading Informational Text Standard: 9-12.RI.1 Cite strong, relevant evidence</p>	<p>Sample Performance Task Aligned to the Academic Standard(s):</p> <ul style="list-style-type: none"> -Use SuperTracker to identify nutrients within a recipe. (9-12.W.7) -Analyze a modified recipe compared to the original for nutritional values. Reflect on how the final product changed. (9-12.RI.1, 9-12.W.4, 9-12.W.7)
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<p>ELA Writings Standards: 9-12.W.2 Write informative/explanatory texts to examine and convey complex ideas; 9-12.W.4 Produce clear and coherent writing...appropriate for the task; 9-12.W.7 Conduct short as well as sustained research</p>	<p>-Prepare foods and experiment with food products based on specialized diets. Write a reflection covering how the new version of the food compares to the original. Consider what might have caused the changes. (9-12.W.2, 9-12.W.7)</p>
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Additional Resources

- Food Science Curriculum (Illinois)
https://www.isbe.net/Documents/fcs_guide.pdf
- Institute of Food Technology <http://www.ift.org/>
- NDSU Extension Food and Nutrition <https://www.ag.ndsu.edu/food/>
- www.kidshealth.org
- U.S. Department of Agriculture <https://ndb.nal.usda.gov/ndb/>
- Online Labels.com
 - <https://www.onlinelabels.com/label-generator-tools/Nutrition-Label-Generator.aspx>
- www.myplate.gov
- Sioux Falls Health Inspection Scores
 - <http://www.sioxfalls.org/health/inspections>
 - <http://webapps.sioxfalls.org/inspections/restaurants.aspx>
- South Dakota Department of Health
 - <https://doh.sd.gov/food/restaurants-lodging/inspection-scores.aspx>
 - <https://sddoh.usasafeinspect.com/Inspection/publicinspectionsearch.aspx>
- Community Supported Agriculture
<https://www.nal.usda.gov/afsic/community-supported-agriculture>
- American Diabetes Association
http://www.diabetes.org/v2.html?utm_expid=54551592-34.IY8Bm7JYQByd1RUKCX4oKQ.2&referrer=https://www.google.com/&utm_referrer=http%3A%2F%2Fwww.diabetes.org%2F
- Center for Nutrition Policy and Promotion - USDA <https://www.cnpp.usda.gov/>
- U.S. Department of Health and Human Services <https://www.hhs.gov/>
- ServSafe <https://www.servsafe.com/>
- Rserveing <https://rserveing.com/web/rserveing.php?siteid=251>
- Occupational Health and Safety Administration <https://www.osha.gov/>